

Date: Tuesday, 4/17/2007 11:08:09 AM
User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: MID TUBE ASSEMBLY
Job Number	: 31847		
Estimate Number	: 10469		
P.O. Number	: <i>NA</i>	Part Number	: D3391023
This Issue	: 4/17/2007	Drawing Number	: D3391 REV F
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: <i>NA</i>	Drawing Revision	: F
Previous Run	: 31846	Material	: <i>NA</i>
Written By	: <i>[Signature]</i>	Due Date	: 5/30/2007
Checked & Approved By	: <i>[Signature]</i>	Qty:	1 Um: Each
Comment	Est. A 05.10.20 New Issue KJ/EC Est. B 06.02.10 ECN773 dwg rev.D EC est C 07.03.20 rev F dwg EC est D 07.03.28 re-format EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description:
---------	-----------------------	--------------

1.0	D25001100	Skidtube Extrusion
-----	-----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
SKIDTUBE EXTRUSION

Pick:

Qty	Part Number	Description
1	D2500-1-100	Extrusion

Batch

B24593 DP 7-4-19

2.0	D3391021	Fwd Tube Assembly
-----	----------	-------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Fwd Tube Assembly

Batch: *1331854*

3.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

1-Cut tube to finish length as per Dwg D3391

DP 7-4-19

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open float bag holes 0.257" as per Dwg D3391

5-C'sink float bag holes as per Dwg D3391

6-Open remaining holes to Ø0.375" except for fwd saddle hole of detail "J"

[Signature]
7-4-19

W/O: _____		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 11:08:09 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31847

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

- 7-Remove .030" from Fwd indexing Ridge as per Dwg D3391
- 8-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391
- 9-Deburr
- 10-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,
- 11-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"
- 12-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.257" and c'sink (20 holes) as per Dwg D3391
- 13-Open .375" holes to .438" ***do not open fwd saddle holes***
- 14-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)
- 15- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021
- 16- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.
- 17- Locating from two fwd wearplate holes drill remaining 6 wearplate holes in D3391-021 using DT8937
- 18- Open 2 fwd wearplate holes in D3391-023 to .250" dia.
- 19- Open 12 wearplate holes in D3391-021 to 0.257" dia.
- 20-Deburr and blow out all chips from inside tube

DP
7-4-19

DP
7-5-29

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

7-5-25 @

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

JB 7-5-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 11:08:09 AM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31847

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Inl 0705-290



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

7.0

D33891

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEB

Pick:

Qty

Part Number

Description

Batch

1

D3389-1

Web

B31897

A/R

Sikaflex-241/-291

m 103 561

Sikaflex expire date:

7-10-1

Start: 11:30

Time: 7-5-29

Finish:

Time: 7-6-6

JD7-5-29

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

2-Bond web in place as per Dwg D3391 & QSI 015.

Adhere for 12 hours)

JD7-5-29

9.0

QC5

INSPECT WORK TO CURRENT STEP



DP 7-6-6



Comment: INSPECT WORK TO CURRENT STEP

10.0

POWDER COATING

POWDER COATING



M 105068



D

Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3.

FL/M 07-08-16

07-08-16

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

FL 07/08/17 D

12.0

NAS1330C3KB116

Insert



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Insert

Pick:

Qty

Part Number

Description

Batch

20

NAS1330C3KB116

Insert

M100712

FL

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: LD Date: 07/08/22
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 11:08:10 AM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31847

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description:

13.0

NAS1330C3KB166

INSERT



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)

RivnuT

Pick:

Qty Part Number

Description

Batch

10

NAS1330C3KB166

Insert

m/00279

FL

14.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install inserts as per dwg D3391

touch-up holes in D3391-021 with alodine

FL 07/08/17 (1)

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect each insert using DT8821

En 07/08/17 (XL)

16.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

33442A

17.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/08/22 (1)

Job Completion



u 07-08-22

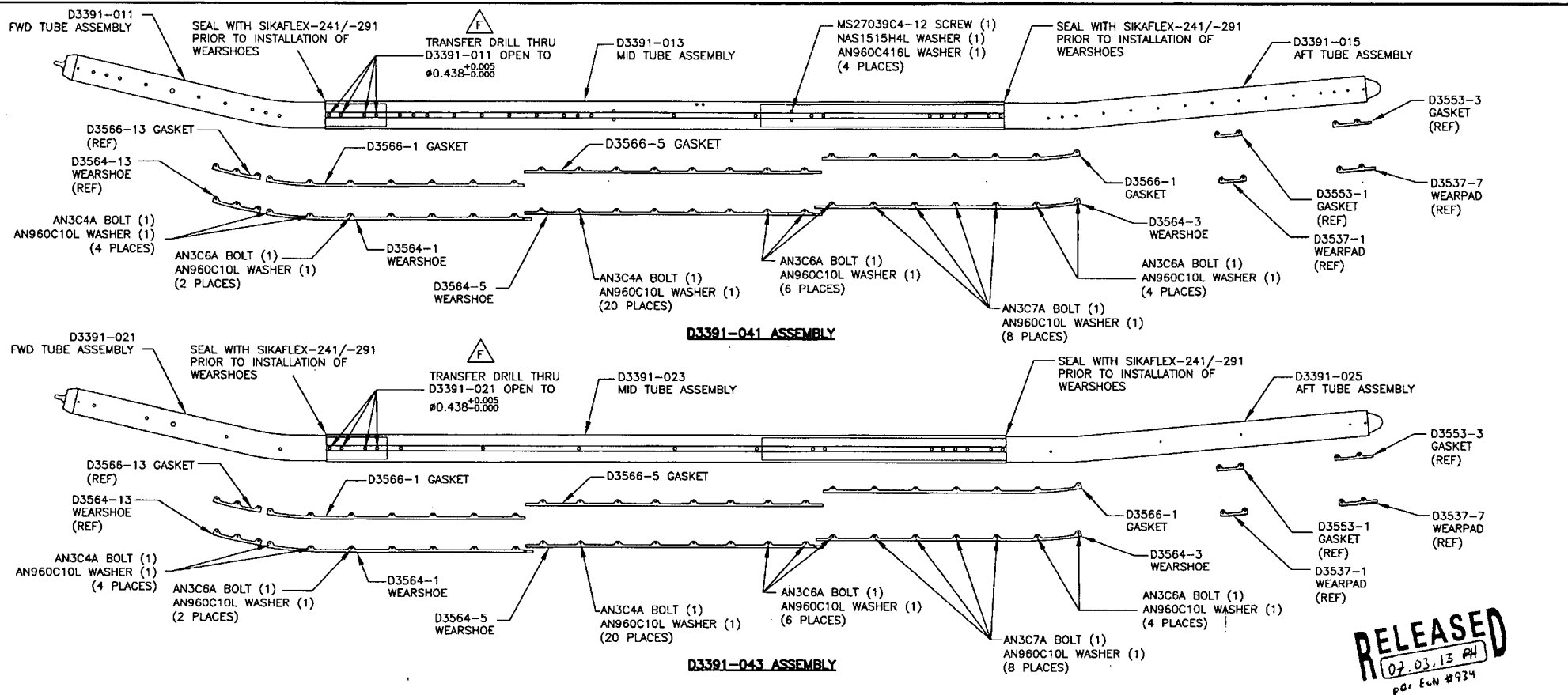
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-043		
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

GENERAL NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS. C/SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

NO. 31847
 ORDER
 RETURN TO
 SHOP COPY
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE

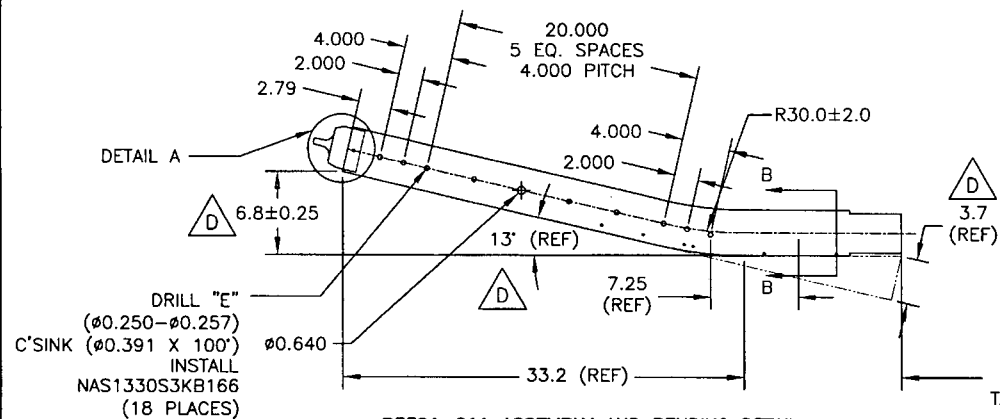
COPYRIGHT © 2006 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

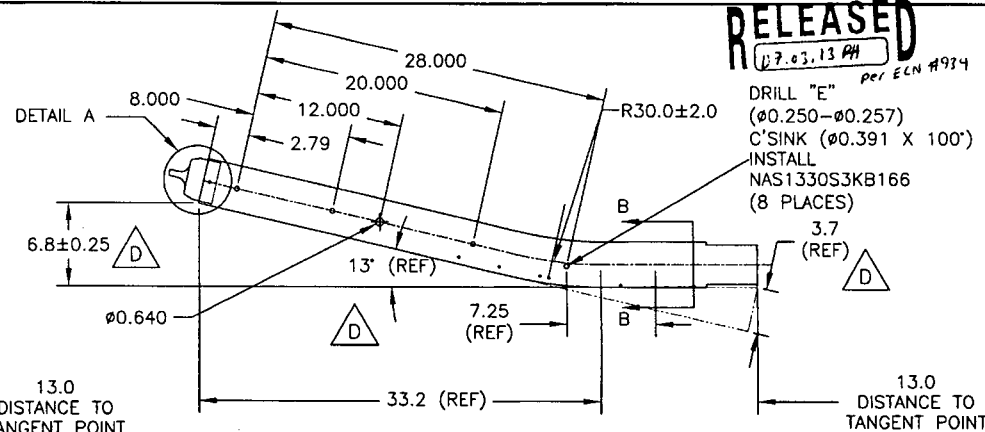
F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	PH	DRAWN BY
CHECKED	PH	APPROVED
DATE	07.01.18	TITLE
		412 FLOAT SKIDTUBE
		DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
		DRAWING NO. D3391
		REV. F
		SHEET 1 OF 5
		SCALE
		NTS

RELEASED
 07.03.13 RH
 per Ecn #934

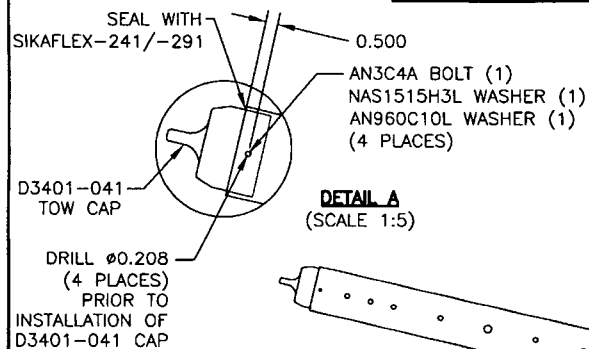
RELEASED
 07.03.13 AH
 per EGN #934



D3391-011 ASSEMBLY AND BENDING DETAIL



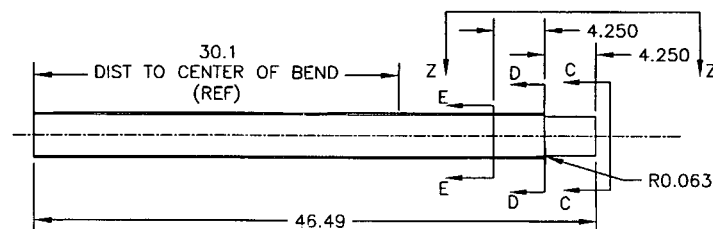
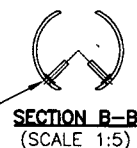
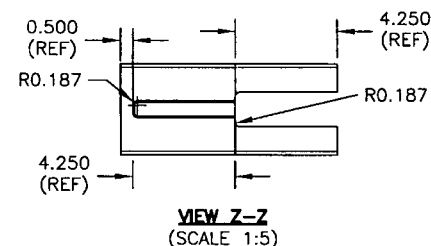
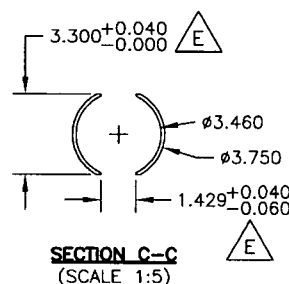
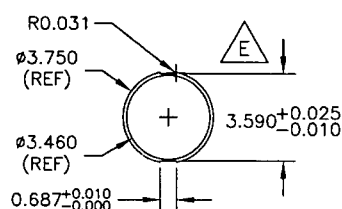
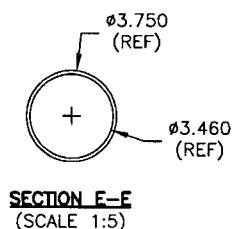
D3391-021 ASSEMBLY AND BENDING DETAIL



D3566-13 GASKET

D3391-011/-021 WEARSHOE ASSEMBLY

D3564-13 WEARSHOE



D3391-1 DRILLING AND CUTTING DETAIL
 (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)

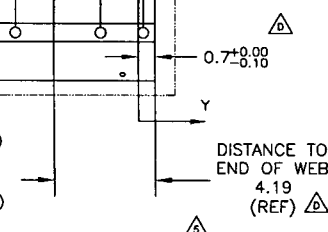
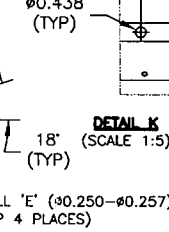
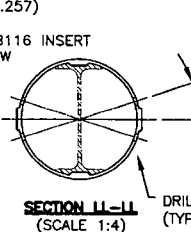
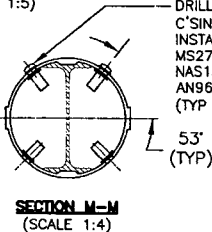
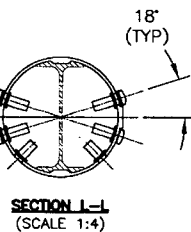
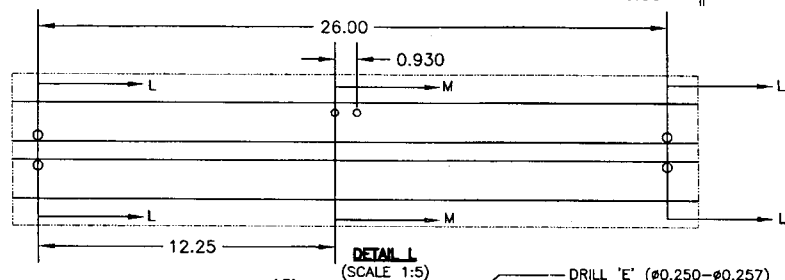
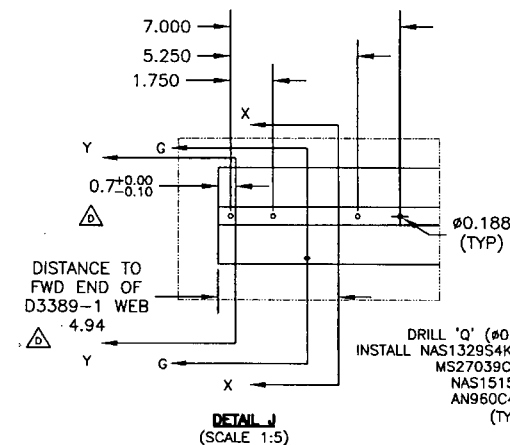
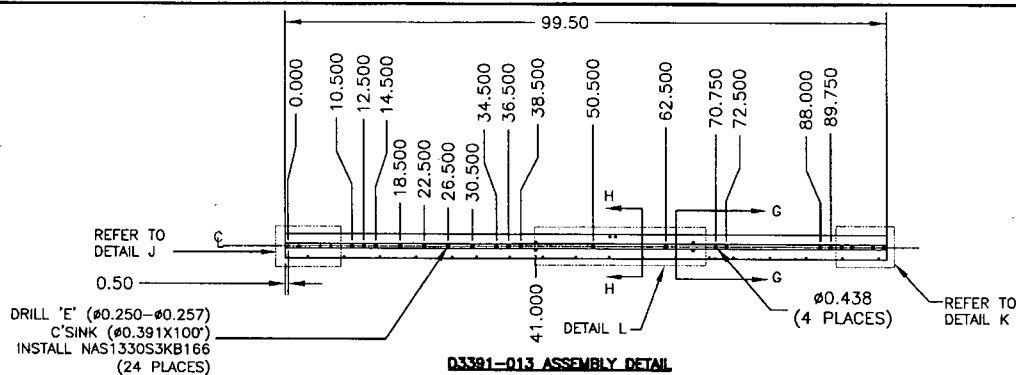
5
 DRILL "E"
 (0.250-0.257)
 C'SINK (0.391 X 100")
 INSTALL
 NAS1330S3KB166
 (12 PLACES)

SHOP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO ATTENDMENT
 WITHOUT NOTICE
 WORK ORDER
 31847

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

DESIGN	DRAWN BY	DART	DART AEROSPACE USA, INC.
PH	PH	PORT HADLOCK, MA	
CHECKED	APPROVED	DRAWING NO.	REV. F
		D3391	SHEET 2 OF 5
DATE		TITLE	SCALE
07.01.18		412 FLOAT SKIDTUBE	1:10



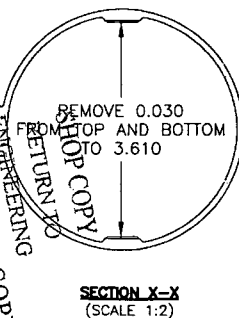
D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X	X	D3391-013	MID TUBE ASSEMBLY
		D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330S3KB116	INSERT (OR NAS1330C3KB116)
24	10	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1329S4KB140	INSERT (OR NAS1329C3KB140)
4		NAS1515H3L	WASHER
4		AN960C10L	WASHER
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
4		MS27039C1-09	SCREW
4		MS27039C4-08	SCREW

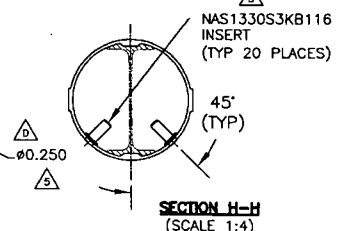
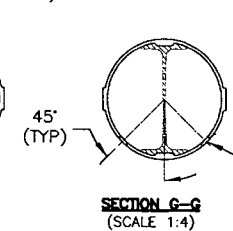
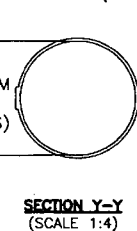
D3391-013/-023 MID TUBE ASSEMBLY

- MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015

UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
NO 31847



REMOVE 0.225 FROM TOP AND BOTTOM TO 3.800 (0.7 FROM BOTH ENDS)

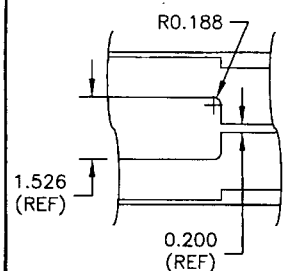


COPYRIGHT © 2006 BY DART AEROSPACE USA, INC.

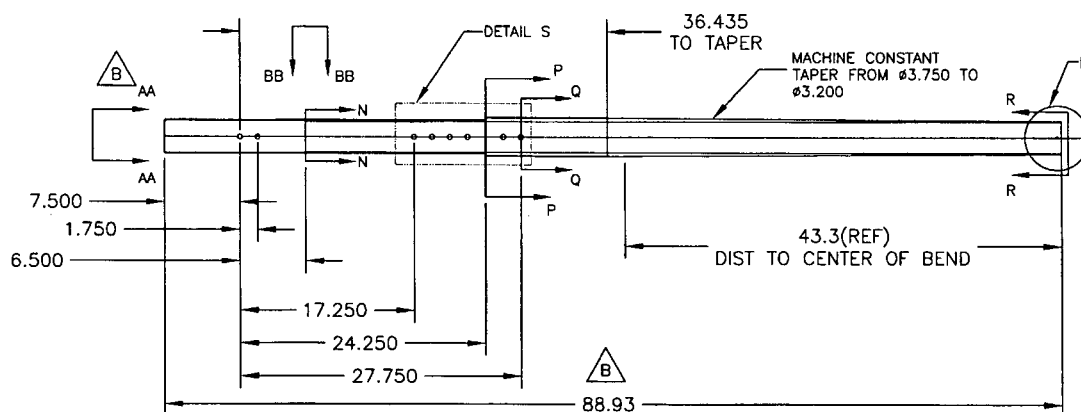
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

DESIGN RH	DRAWN BY RH	DART AEROSPACE USA, INC. PORT HADLOCK, MA	REV. F
CHECKED H	APPROVED H	DRAWING NO. D3391	SHEET 3 OF 5
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	SCALE 1:20	

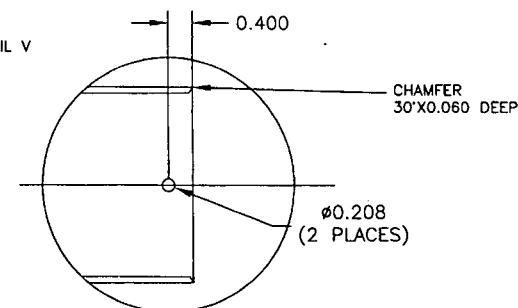
RELEASED
07.05.13 RH
DCI ELM #934



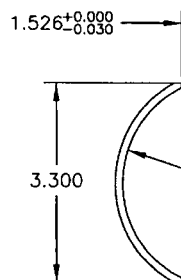
VIEW BB-BB
(SCALE 1:3)



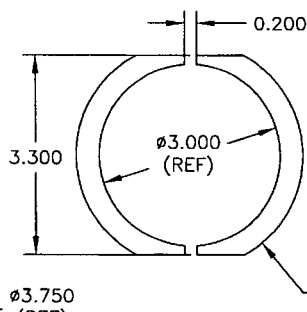
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



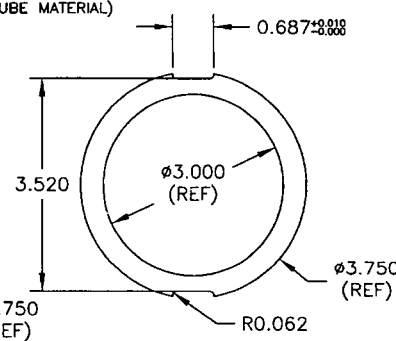
DETAIL V
(SCALE 1:2)



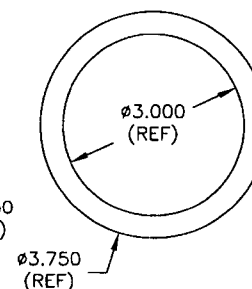
SECTION AA-AA
(SCALE 1:2)



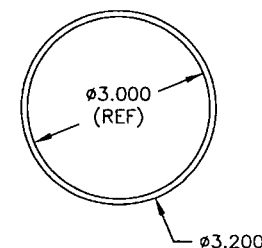
SECTION N-N
(SCALE 1:2)



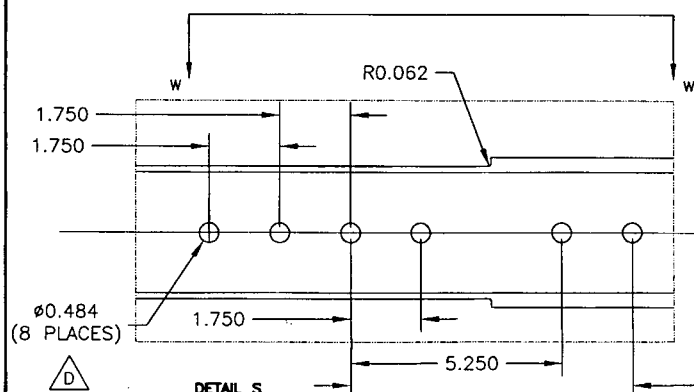
SECTION P-P
(SCALE 1:2)



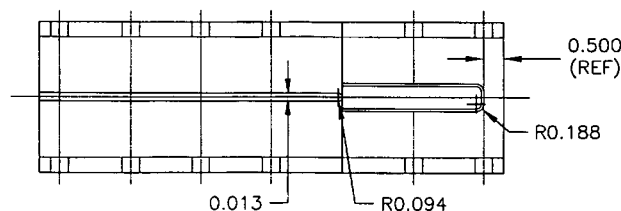
SECTION Q-Q
(SCALE 1:2)



SECTION R-R
(SCALE 1:2)



DETAIL S
(SCALE 1:3)



VIEW W-W
(SCALE 1:3)

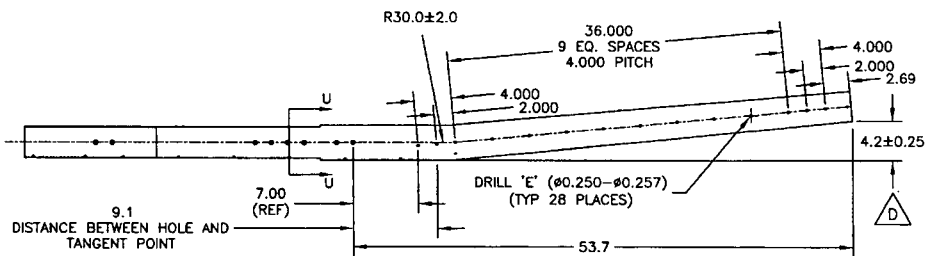
NO. 21847
WORK ORDER
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
DART AEROSPACE USA, INC.

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC.

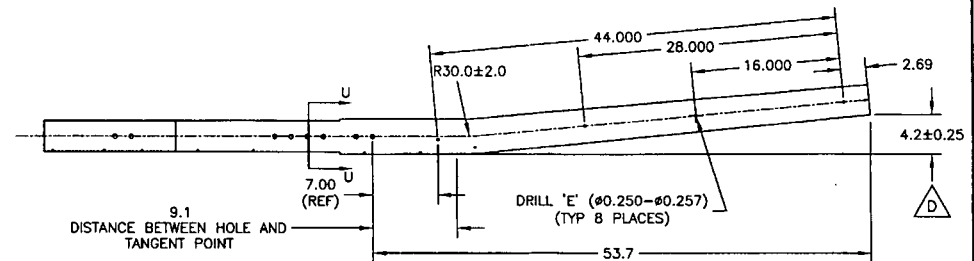
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL
AND IS SUPPLIED ON THE EXPRESS CONDITION
THAT IT IS NOT TO BE USED FOR ANY PURPOSE
OR COPIED OR COMMUNICATED TO ANY OTHER
PERSON WITHOUT WRITTEN PERMISSION FROM
DART AEROSPACE USA, INC.

DESIGN PH	DRAWN BY PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA	REV. F
CHECKED H	APPROVED H	DRAWING NO. D3391	SHEET 4 OF 5
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	SCALE 1:12	

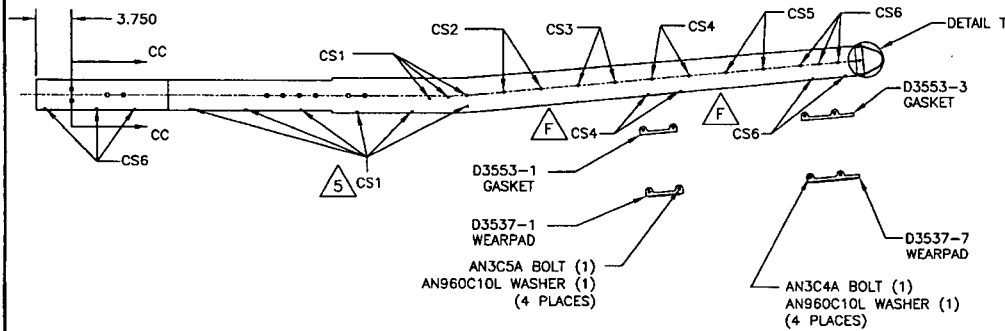
RELEASED
07.03.13 PH
P.C. E.C.N. #934



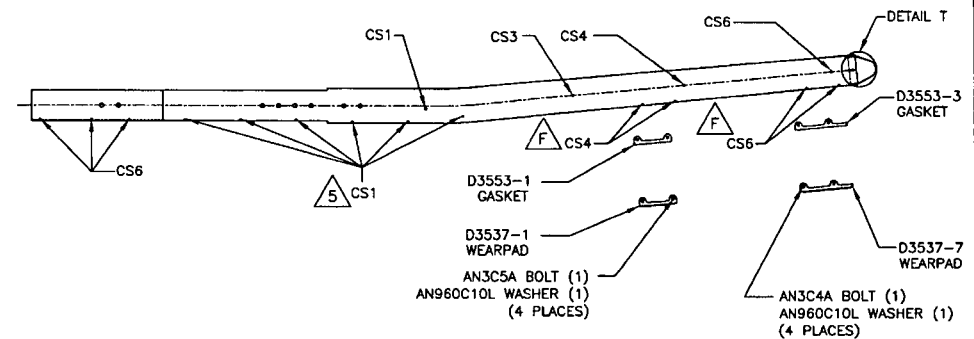
D3391-015 BENDING AND ASSEMBLY DETAIL



D3391-025 BENDING AND ASSEMBLY DETAIL



D3391-015 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)



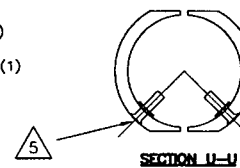
D3391-025 INSERT AND WEARPAD INSTALLATION DETAIL
(SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

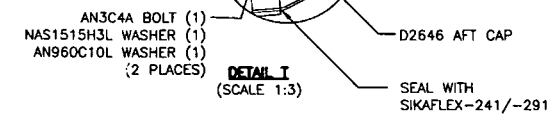
QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER

UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
ENGINEERING
RETURN TO
SHOP COPY
SCALE 1:3
SECTION CC-CC
18" (TYP)
C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	NAS1330S3KB366
CS2	4		Ø0.391	NAS1330S3KB366
CS3	4	2	Ø0.391	NAS1330S3KB316
CS4	8	6	Ø0.391	NAS1330S3KB266
CS5	4		Ø0.391	NAS1330S3KB216
CS6	16	12	Ø0.391	NAS1330S3KB166



SECTION U-U
(SCALE 1:3)



DETAIL T
(SCALE 1:3)

RELEASED
07.03.13 RH
per ECN #934

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

DESIGN RH	DRAWN BY RH	DART DART AEROSPACE USA, INC. PORT HADLOCK, MA
CHECKED H	APPROVED H	DRAWING NO. D3391
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	REV. F SHEET 5 OF 5 SCALE 1:12